

U P S

On-Line

4KVA-20KVA

■ USER MANUAL ■

EMC Statement

These products are tested and thereby comply with the conditions of CE regulation, which established to offer sufficient protection against dangerous interference for installation. Installation and use of the equipment should comply with the instructions provided to avoid such interference due to the amount of radiofrequency energy that generates by the equipment; Despite this, we cannot assure that a certain amount of interference may not occur in some installations.

If by turning on and off, you conclude that the equipment's harmful interference influences your radio or television reception, use one of the following preventive measures:

- Place the receiving antenna in a separate location or orientation
- Ensure a greater distance between the receiver and the equipment
- Ensure that your Equipment connects to an outlet on a separate circuit
- Contact a technician experienced with radio and TV or the dealer for technical assistance

Declaration of Conformity Request

Units labelled with a CE mark comply with the following standard and directives:

- EMC Directive 2014/30/EU
- LVD Directive 2014/35/EU
- Safety: EN 62040 - 1
- EMC: EN 62040 - 2

The EC Declaration of Conformity is available upon request for production with a CE mark.

FCC Part 15

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1. This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Table of content

EMC Statement	1
1. IMPORTANT SAFETY INSTRUCTION	3
2. Introduction	4
3. Installation	4
3.1 Hardware Installation	4
3.2 Rear panel view (For reference only)	4
3.3 Connection to External Battery Pack.....	8
3.4 Connection to Main and Load	8
4. Operation.....	11
4.1 General Description	11
4.2 System Configuration	12
4.3 Panel overview	12
4.4 UPS Control	12
4.5 UPS Status Display.....	14
4.6 UPS Configuration	14
5. UPS Monitoring Connection	15
5.1 Connect UPS to Computer with USB (Optional)/RS232 port.	15
5.2 Connect UPS with interface Slot(Optional)	15
5.3 UPS RS232 PORT	15
6. Maintenance	16
6.1 Transportation	16
6.2 Storage.....	16
6.3 Operation.....	16
6.4 Battery	16
6.4.1 Maintenance	16
6.4.2 Replacement	16
APP-A. Troubleshooting.....	17
APP-B Technical Specifications	18

1. IMPORTANT SAFETY INSTRUCTION

WARNING: SAVE THESE INSTRUCTIONS!!

- **WARNING:** Manual contains important instructions of UPS and batteries during installation and maintenance. Follow this instruction at all time
- **WARNING:** It is recommended to install UPS in an ANSI/NFPA75 room in which temperature and humidity are controlled and free from electrically conductive particles. **DO NOT** expose UPS to direct sunlight or high heat source; **DO NOT** block off ventilation opening around the housing.
- **CAUTION:** Before conducting maintenance, repair, or shipment, please turn off everything completely and disconnect them.
- **CAUTION:** The UPS is **NOT** applicable for any inductive loads such as motors or domestic appliances like hairdryers, speakers, and fluorescent lamps.
- **CAUTION:** All interconnection and power cable should be connected **ONLY AFTER** the UPS shut down and disconnected from main.
- **CAUTION:** Only use No.26 AWG or larger certified cables to connect UPS and device.
- **CAUTION:** **DO NOT** unplug UPS from main power during operation or protective ground will fail. **DO NOT** disconnect battery under load or shut down may occur.
- **CAUTION:** Ensure the total leakage current of UPS and the connected equipment under 3.5mA.
- **CAUTION:** Ensure UPS connects to grounded main power with a fuse or circuit breaker protection.
- **CAUTION:** Dangerous amount of voltage might still exist even the UPS disconnects from the main power since residual voltage exists due to battery supply.
- **CAUTION:** Beware of all the details on the cautionary sticker located on UPS.
- **CAUTION (No user-serviceable parts):** Do not attempt to remove the unit's cover, no user-serviceable parts inside. Please refer all service to qualified service technicians.
- **CAUTION:** **DO NOT** dispose UPS and its batteries to fire, the battery may explode.
- **CAUTION:** **DO NOT** attempt to open or mutilate the battery.
- **User's operations:** Users only permits to:
 - Turning the UPS unit on and off.
 - Operating the user interface.
 - Connecting data interface cables.
- **CAUTION:** Battery can cause shock and short circuit current. When servicing batteries:
 - A. Remove watches, rings, or other metal objects.
 - B. Use tools with insulated handles.
 - C. Wear rubber gloves and boots.
 - D. Please **DO NOT** place any tools or metal parts on top of batteries.
 - E. Disconnect charging source before connecting/disconnecting battery terminals
 - F. Servicing of batteries should be performed or supervised by personnel with necessary precautions and knowledge. Keep unauthorized personnel away from batteries.
- **DANGER:** Hazardous electric component inside this unit (example: Heat-sinks) remain energized from the battery supply even when the main power is disconnected.
- **DANGER:** Battery circuit is not isolated from the AC input. Hazardous voltage may exist at battery terminals and ground—test for safety before any direct contact.
- **CAUTION:** Remove the battery's pole during service inside the battery cabinet or UPS.
- **CAUTION:** **ONLY** replace batteries with the same type and quantity.

WARNING (Fuses): Ensure fuse replacement with the same type and rating **ONLY**.

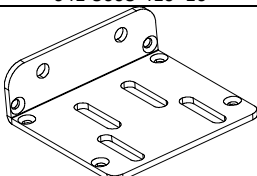
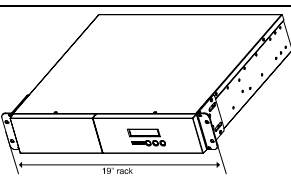
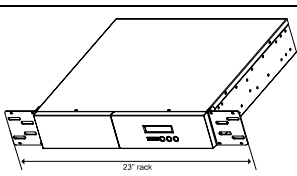
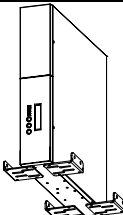
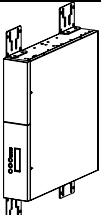
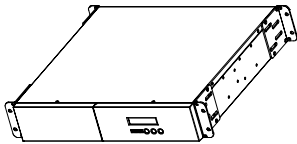
2. Introduction

The information provided in this manual covers On-Line 4K-20K uninterruptible power system (UPS). This manual contains basic functions, operating procedures, and emergencies, also including information on how to ship, store, handle, and install the equipment. Only detailed requirements of the UPS units described herein. The installation must carry out according to this manual. The electrical installation must further comply with local legislation and regulations.

3. Installation

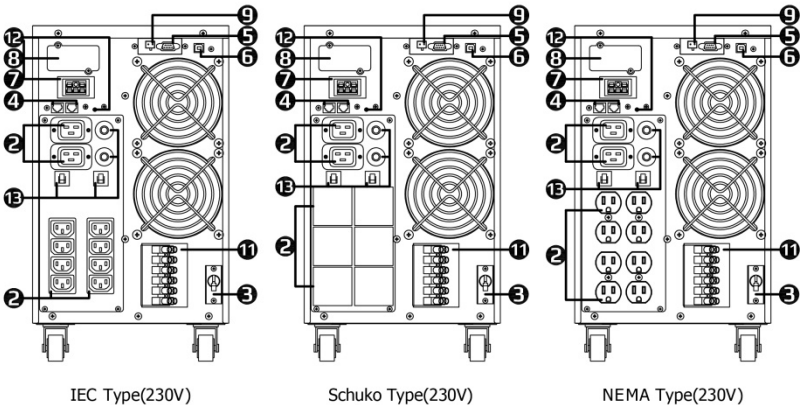
3.1 Hardware Installation

Please install the vertical and wall-mounted types of units according to the following

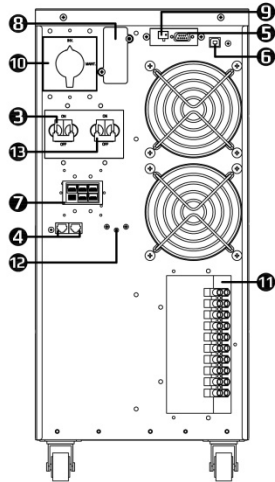
5 in 1 RACK-MOUNT BRACKETS: 94A-VM1K-000*4, 641-5008-410*16	19" Rack Parts EIA 310C Stander Rack	23" Rack Parts EIA 310 Stander Rack
		
Tower Mount the bracket with screw and stand as fig below	Wall mount Mount the bracelet at the side with screw and place as fig below	Rear bracket Mount the bracket at the rear of UPS or battery
		

3.2 Rear panel view (For reference only)

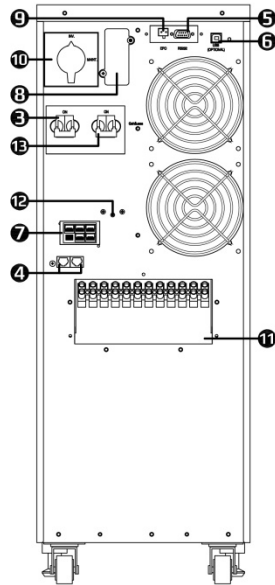
4-5KVA



5-6KVA

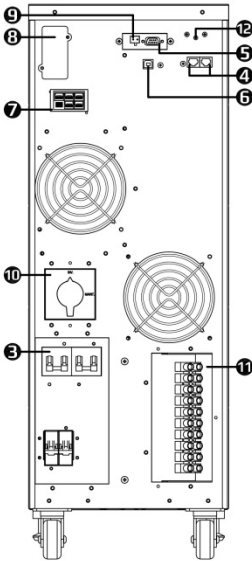


VGD 5K/6K

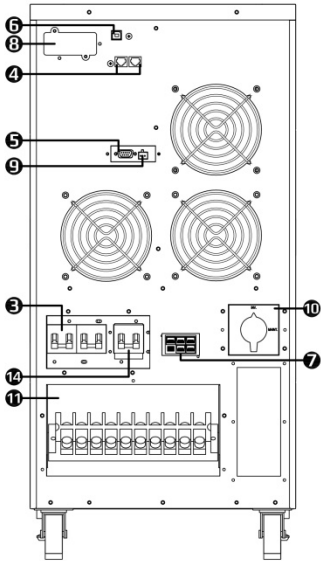


VGD-5K/6K-ISO

8-10KVA

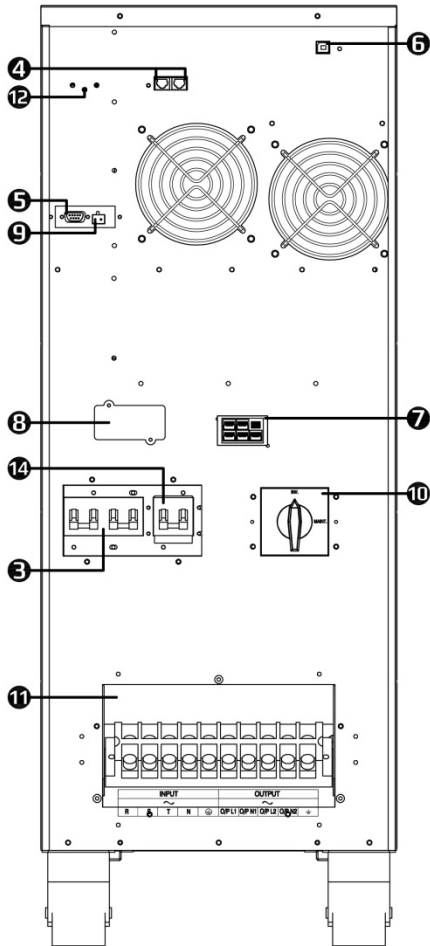


VGD-8K~10K

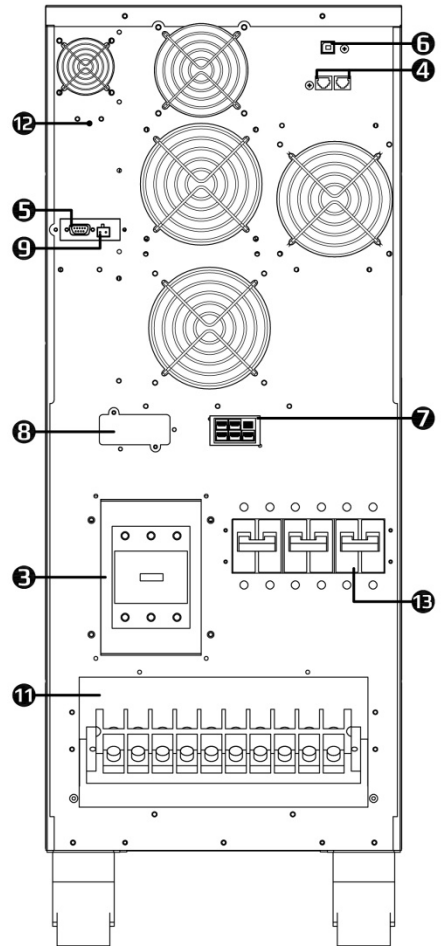


VGD-8K~10K ISO

12-20KVA



VGD-12K ISO & WITHOUT ISO

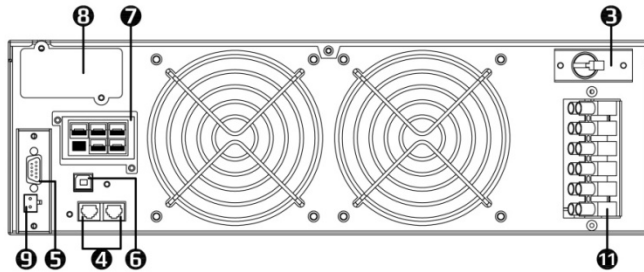


VGD-15K/20K ISO & WITHOUT ISO

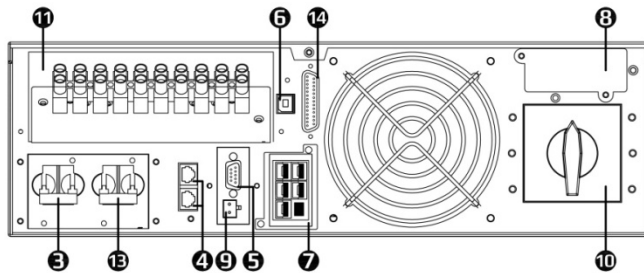
- ① Input
- ② Outlet
- ③ Input breaker
- ④ Network transient protector
- ⑤ RS232 port
- ⑥ USB (optional)
- ⑦ External battery port (optional)

- ⑧ Interface port (optional)
- ⑨ EPO (optional)
- ⑩ Maintenance switch (optional)
- ⑪ Terminal block
- ⑫ Reset
- ⑬ Outlet breaker
- ⑭ Battery breaker

4-6KVA

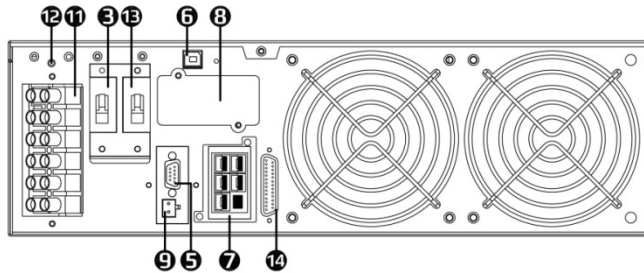


VGD-4K/5K-RM UPS MODULE (3U)



VGD-6K-RM UPS MODULE (3U)

8-12KVA



VGD-8K~12K-RM UPS MODULE (3U)

- | | |
|------------------------------------|----------------------------------|
| ① Input | ⑧ Interface port (optional) |
| ② Outlet | ⑨ EPO (optional) |
| ③ Input breaker | ⑩ Maintenance switch (optional) |
| ④ Network transient protector | ⑪ Terminal block |
| ⑤ RS232 port | ⑫ Reset |
| ⑥ USB (optional) | ⑬ Outlet breaker |
| ⑦ External battery port (optional) | ⑭ Remote control port (Optional) |

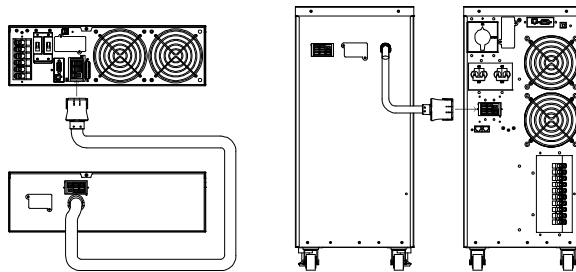
***Figures only display available function; functions are not on unit if not marked.**

EPO port

A customer-supplied switch can remotely use to open the EPO connection and shut off UPS output. Since EPO shuts down the UPS immediately without regular procedure and monitoring, UPS will require a manual restart to restore operation.

3.3 Connection to External Battery Pack

- External battery connections shall install by service personnel **only**.
- Please read safety instructions first before proceeding.
- Ensure UPS disconnects from all main and loads before attempting.
- Locate the battery connector, then use **only** factory-supplied or authorized battery cable provided to connect the UPS with the battery as fig below.
- Connect the second battery to the first one if more than one is needed.
- The Maximum quantity of battery pack is regulated to 2 by UL approval.



● Fig. Example of connecting to an external battery pack

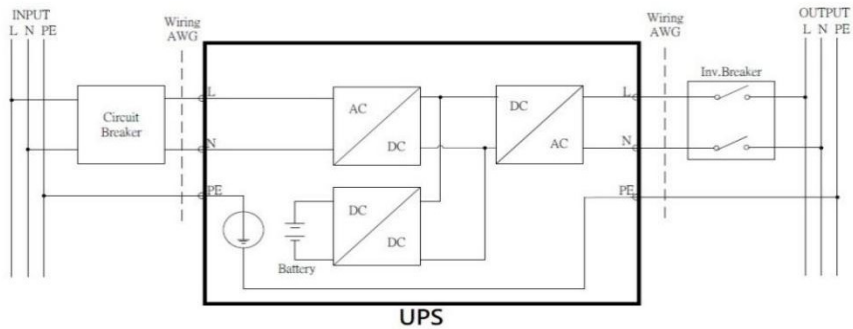
3.4 Connection to Main and Load

- Follow all installation and safety instructions very carefully; failure to do so may cause hazardous situations to personnel and equipment.
- Ensure the main power voltage matches with UPS. (110V/220V)
- For electrical installation, closely observe the nominal current rating of the source.
- Check the equipment's power requirement to prevent overloading situations.
- Do not connect devices that draw either massive power shortly or half-wave rectified current - such as hairdryer, vacuum cleaner, laser printer, and plotter.

Note: Although you may use the UPS immediately, maximum back up time will not be available yet. It is recommended to charge the batteries for a minimum of 8 hours before use.

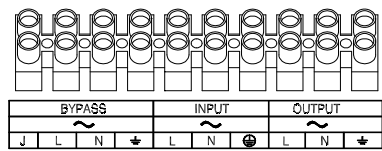
- Only a qualified technician with applicable safety standards may carry out the installation. Installation must also comply with local legislation and regulations.
- Connect the input cable to the UPS and the other end to the mains. The battery will automatically charge when connecting to the main power.
- Ensure the installation site has all electrical connections needed. Refer to the figure below for the fuse & cable dimension and connection diagram.
- To isolate and secure the source against reclosing, both input and output circuit breakers (located in the back) must be "OFF."
- After charging the UPS, connect the loads to the UPS.
- Should computer or alarm connections be used, refer to UPS monitoring connection chapter for further detail.

- **Note:** During installation, if whether the main power is grounded cannot be determined, or the main power's neutral is unreliable, an additional two-pole disconnect device is necessary for building installation.
- **Caution:** Local safety requirements may demand separate external Emergency Power Off. Refer to External breaker/ EPO connection for further detail.
- The installation is completed.

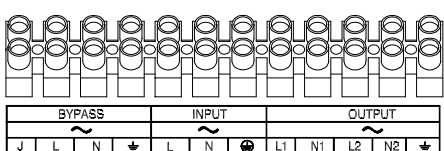


Note: Wiring cord must be UL approved. (105°C)

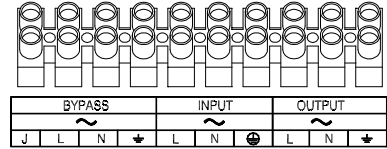
4/5/6K TB



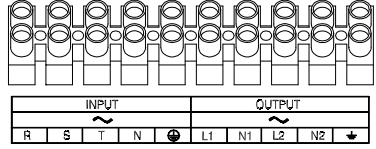
4/5/6K-ISO TB



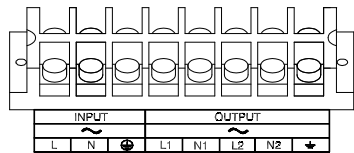
8/10K TB



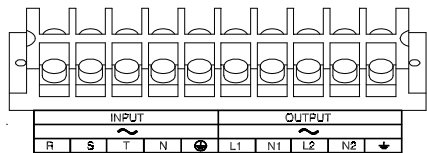
8/10K-3Ø TB



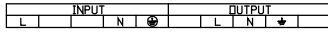
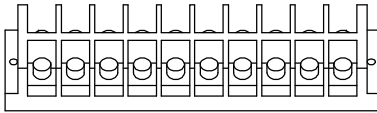
4/5/6/8/10/12K-ISO TB



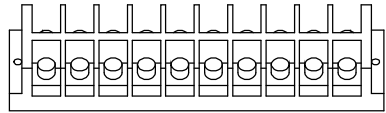
8/10/12K-ISO-3Ø TB



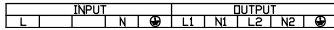
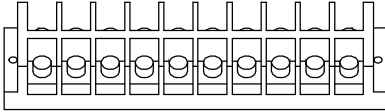
15/20K TB



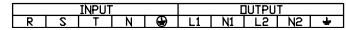
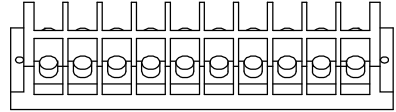
15/20K 3Ø TB



15/20K-ISO TB



15/20K-ISO- 3Ø TB



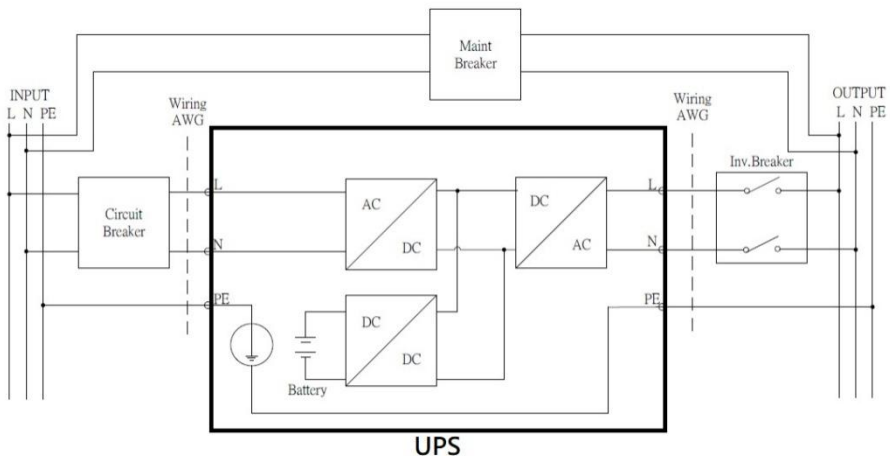
Model (KVA)	Circuit Breaker	Wiring AWG or mm ²	Model (KVA)	Circuit Breaker	Wiring AWG or mm ²
4KVA	20A/240Vac	12 AWG or 3.5 mm ²	10KVA	53A/240Vac	8 AWG or 14 mm ²
5KVA	27A/240Vac	10 AWG or 5.5 mm ²	12KVA	60A/240Vac	6 AWG or 14 mm ²
6KVA	32A/240Vac	10 AWG or 5.5 mm ²	15KVA	75A/240Vac	6 AWG or 14 mm ²
8KVA	43A/240Vac	8 AWG or 8 mm ²	20KVA	100A/240Vac	6 AWG or 14 mm ²

External Breaker/External EPO connection

Due to certain local safety requirements and legislation, you may require a separate external Emergency Power Off for output circuit breaker.

If you need an external breaker for safety or maintenance reason, use the fig below for installation.

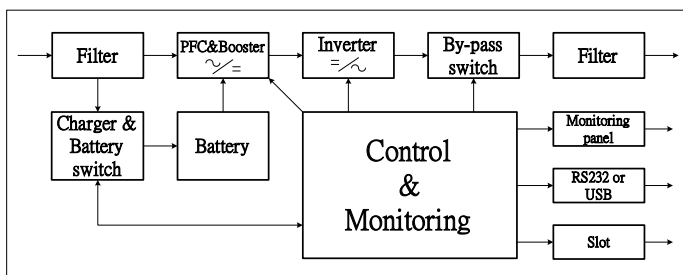
External Maintenance Breaker Wiring connection.



4. Operation

Necessary information for the operation of the unit is covered in this chapter. Normally UPS runs automatically, but on a few occasions such as just after installation, all procedures are described herein.

4.1 General Description



As double conversion On-line UPS, it can convert clean single-phase power to support your critical system. The diagram of UPS is as shown above

- Input filter reduces transients and interference from the main
- With PFC AC/DC, AC-power is rectified and regulated to DC power
- DC power is converted to AC in the inverter passing it on to the load

Line-Mode/Battery-Mode

UPS will operate in Line-Mode that supports power and charge battery while connected to power. During a power failure, the UPS will switch to Battery-Mode, in which power is maintained from the battery. In case of failure time exceed Battery-Mode duration, UPS will shut down until voltage return to prevent battery discharge.

Free Run Mode

Free Run Mode provides a wider input frequency range when input frequency does not match the selected range (user adjustable). Free Run Mode enlarges input frequency acceptance up to 45Hz ~ 65Hz but fixes output frequency to 50Hz(220V) and 60Hz(110V) with $\pm 0.25\text{Hz}$. Free Run Mode designs for large power variation. It is activated in default and can run with Line-mode simultaneously.

High-Efficiency Mode

High-Efficiency Mode designs to minimize power loss and power consumption. Whenever power is stable, UPS will automatically switch to bypass for efficiency. When any irregularity is detected, Line-Mode will reactivate immediately. Switching occurs when the input voltage is outside $\pm 10\%$ of nominal ($\pm 15\%$ selectable), input frequency is outside of $\pm 3\text{Hz}$, or when no input line is available.

You can also activate this mode from the LCD panel. Refer to UPS configuration.

Diagnostic Test

The diagnostic test automatically executes to check and report UPS status. While the advanced battery management system monitors the conditions of the batteries, it sends early warnings if a battery replacement is needed. Diagnostic tests can also be performed by manual control.

Generator mode

This mode designs for highly unstable power. In this mode, UPS normal operation will not transfer to bypass to prevent load damage and frequent battery discharge. UPS will also fix output frequency to 50Hz(220V) or 60Hz(110V) with $\pm 0.25\text{Hz}$. Users can set the UPS to bypass/shutdown whenever UPS malfunction occurred.

Generator Mode can activate from the LCD panel too.

4.2 System Configuration

The UPS device and battery make up the system. Depending on site and load requirements, certain additional options are available as tailored solutions. Please consider the following when planning your UPS system:

- The total demand for the protected system shall dictate the output power rating (VA). When measuring demand, please allow a margin for future expansion and calculation error.
- Battery-mode duration needs dictate the battery size. If the load is less than the UPS nominal power rating, then the actual backup time is longer.
- The following options are available:
 - Connectivity options (relay card, SNMP/WEB card)
 - External battery packs
 - Transformer cabinets
 - Maintenance bypass switches

4.3 Panel overview

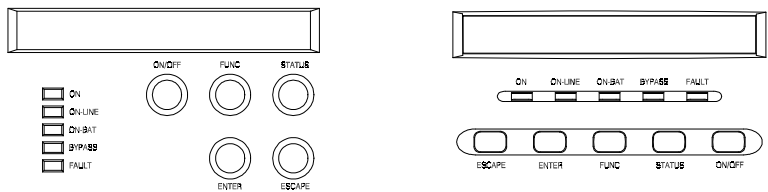


Fig. Control panel and display

4.4 UPS Control
Control panel functions

Display	Function Description	Display	Function Description
LED Display			
ON	<u>UPS ON (Green)</u> UPS is activated The LED will display in green	ON-BAT	<u>Battery Mode (Yellow)</u> UPS is operating with battery power, LED will display in Yellow
On-Line	<u>UPS On-Line (Green)</u> In Line/Static Bypass mode, a green light will appear when there is voltage output.	BYPASS	<u>Bypass Mode (Green)</u> Bypass mode operating. LED will display in yellow
FAULT	<u>Internal Fault (Red)</u> Internal Fault Occur, LED will lash in red with an audible alarm		
Display	Function Description	Display	Function Description
LCD Display			
On-line mode	UPS is operating with main power	Battery mode	UPS is operating with battery power
Bypass mode	UPS on Bypass mode	Fault	UPS Fault information will display on LCD. Refer to troubleshooting
Button Display			
ON/OFF	<u>ON/OFF Button</u> To turn on and off UPS, refer to Button Operation	FUNC	<u>Function Button</u> To scroll and view function in UPS configuration, refer to Button Operation

ENTER	<u>Enter Button</u> To confirm/enable selection	STATUS	<u>Status</u> To check UPS status, refer to Button Operation
ESCAPE	<u>Escape Button</u> Return to the main display, refer to Button Operation		

Button operation

Cold Start function

When the main power is disconnected from UPS, it is capable of starting with battery power for users' needs. Simply start the UPS as the instruction below.

Note: To avoid accidental battery discharge, cold start function is not available until the initial connection to the main power.

1. "ON/OFF" button

- Press and hold the "ON/OFF" button for 3 seconds to turn on the UPS.
- Push and hold the "ON/OFF" button for 3 seconds to turn off the UPS while it is working.

2. "STATUS" button

Use this button to check the UPS contents:

- Press the "STATUS" button (at least 2 seconds) to check UPS contents.
- Display each content by pressing once;** there are 15 contents available.
- If UPS idle for 10 seconds, it will return to the original status.

3. "FUNC" button

Use ENTER and this button to execute UPS Function

- Press the "FUNC" button for 2 seconds to enter the configuration.
- Display each function by pressing once. There are 14 functions available.
- Press the "ENTER" button to enter the desired function.
- Press the "FUNC" button to select your option.
- Press the "ENTER" button to enable your desired option.
- Press the "ENTER" button again to confirm and enable your option.
- If UPS idle for 10 seconds, it will return to the original display.

4. "ENTER" button

Use this button to enter, enable, or confirm the desired function.

5. "ESCAPE" button

Use this button to return to the main display (Line mode or Battery Mode) or return to the last page during function selection.

Turn on the UPS

- Ensure installation is correct and successful, and connect the input power cable to a well-grounded outlet.
- Push the "on/off" button on the front panel for 3 seconds.
- UPS should start its inspection of internal function, main synchronization, and inverter start-up. The LCD panel will display "Line-Mode" indication and power should start supplying via the outlets.
- Switch on the loads.

Shut Down the UPS

- Shut down and turn off all the loads.
- Press the "On/Off" for 3 seconds. UPS will shut down with an alarm.
- (If applicable) To avoid electrical hazards, please turn off the internal/external input breaker after the display disappeared, and only the backlight remains. Then, turn off any external battery breaker and wait till all fans completely shut down.
- In an emergency, use the EPO located on the rear panel.

4.5 UPS Status Display

UPS status shows in normal display mode. From here, you can go to the UPS meter display by pressing the button. Various measurements are available through UPS meters display; Pressing the button will scroll through the following meters.

LCD message	Description
O/P VOLT= xxx, xV	Shows Output AC voltage
O/P FREQ= xx, x Hz	Shows Output Frequency
I/P VOL T= xxx, xV	Shows Input AC voltage
I/P FREQ= xx, x Hz	Shows Input Frequency
BAT VOLT= xx,xV	Shows Battery Voltage
O/P LOAD%= xx%	Shows Load % of max load
O/P W= xW	Shows Output Watts
O/P VA= xVA	Shows Output VA
O/P CURR= xA	Shows Output Current
BACKUP TIME= xx min	Shows Estimated Backup time in minutes
BAT CHARG= xx%	Shows the approximate percentage of Battery capacity
TEMPERATURE= xxC	Shows approximate ambient temperature
BAT PACK NUM= x	Shows External Battery Pack Number
RATING = xxxVA	Shows UPS Rating
CPU VERSION xx.x	Shows CPU Version

4.6 UPS Configuration

Caution: Factory default settings do not necessarily have to be changed, although you are free to tailor the UPS as your specific needs.

Here are the procedures to enter configuration mode

Press the “FUNC” button for one second to enter the configuration. The first function will show on the LCD.

Display each content by pressing once. There are 14 functions available.

Press the “ENTER” button to enter the desired function.

Press the “FUNC” button to select your option.

Press the “ENTER” button to enable your desired option.

Press the “ENTER” button again to confirm and enable your option.

If UPS is idle for 10 seconds, it will return to the main menu

Settings	LCD display	Selection	Factory default
Output Volt.Setting	O/P V Setting	[208V][220V][230V][240V]	[230V]
Input/Frequency	I/P F Setting	[±2%] [±5%] [±7%]	[±5%]
Input/Bypass Voltage	I/P Bypass Set	[±10%][+10/-15%][+15/-20%]	[+10/-15%]
Free Run Mode	Free Run Set	[On][Off]	[On]
Bypass Enable/Disable at Free run mode	Bypass disable	[Disable] [Enable]	[Disable]
He mode Setting	HE Mode Set	[On] [Off]	[Off]
Force Manual Bypass*	Manual bypass	[On] [Off]	[Off]
Do Battery Test	Battery Test		
Silence Function	Silence Set	[On][Off]	[Off]
Number of External battery Packs**	Bat Cabinet Set	[0] (Internal only) / [1] (1 External cabinet) [2] (2 External cabinets)	[0]
Site wiring alarm	Sit Fault Set	[Enable] [Disable]	[Disable]
Select Language	Language	[English] [German] [French] [Spanish] [Italian]	[English]
Set Generator Mode	Generator	[On][Off]	[Off]
Set RS232 communication	RS232 Control	[Enable] [Disable]	[Enable]

*) **Note:** For UPS and power management software to operate normally, Manual Bypass should set to “OFF,” or the load won’t be protected. This setting is specifically design for maintenance personnel and should be used alone with external maintenance switch if applicable.

*) **Note:** 20K & 20K31 only uses internal batteries.

UPS Manual test

Manual tests for UPS or battery can be conducted from the UPS configuration as well and are functional even when the UPS is not charging the battery.

Simple test: It’s recommended to conduct a simple simulation test when

1. The first use of UPS.
2. Adding new loads.
3. 6 months’ regular check-up

Switch on the UPS and wait for the power indicator to light up, then unplug UPS to simulate the main power failure.

Manual Battery Test: Scroll thought configuration until the Manual Battery test function displayed. Then select by pressing “Enter” Twice.

5. UPS Monitoring Connection

UPSMON Pro software (Or other power monitoring software) can further utilize the UPS with warning reminders, monitoring, control shut down, and setting adjustments.

Using monitoring features requires connecting the UPS to a computer or the internet

5.1 Connect UPS to Computer with USB (Optional)/RS232 port.

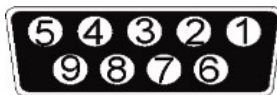
- Locate the USB/RS232 port on UPS.
- Connect with factory-provided/approved communication cable.
- Ensure your computer can install and support power management software.
- **Note:** Either USB Port or RS232 port, only one port will function at a time.

5.2 Connect UPS with interface Slot(Optional)

- **SNMP Card** allows UPS management and monitoring over a network or internet
- For more information, please contact for technical assistance.
- **AS400 Card** allows voltage free relay contacts.

5.3 UPS RS232 PORT

- The RS-232 interface uses a 9-pin female D-sub connector.
 - The RS-232 port carries the data about utility, load, and UPS.
- The interface port pins and their functions are in the following table



Pin #	Signal	Direction	Function
2	TxD	Output	TxD Output
3	RxD	Input	RxD / Inverter Off Input
5	Common		Common
6		Output	AC Fail Output
8		Output	Low Battery Output
9		Output	12VDC Power

Caution! Max rated values 12VDC

6. Maintenance

Please read the following instruction to ensure your safety and maintain a longer product lifetime. This section contains detailed information about moving, maintaining, and placing the UPS. With a minimal amount of maintenance, you can expect the UPS to function smoothly.

6.1 Transportation

Please handle UPS with extreme caution since a high amount of energy is within the batteries. Keep the unit in position as marked on the packaging and never drop the unit.

6.2 Storage

Please read the following instructions if the UPS is not installed immediately:

- Store the equipment as is in its original packing and shipping carton.
- Do not store in temperatures outside the range of +15°C to +25°C.
- Protect the equipment from wet or damp areas and moist air.
- To maintain the vitality of the batteries, please recharge the UPS at least 8 hours every six months.

6.3 Operation

CAUTION: Ensure that all environmental concerns and requirements are met according to safety instruction; otherwise, the safety of installation personnel cannot be guaranteed since the unit may malfunction.

- Please ensure no flammable substances such as gases or fumes.
- Avoid extreme temperature and humidity. Protect the equipment from moisture.
- Ensure there is enough space (300mm or above recommended) at the rear and side of UPS for proper ventilation.
- Ensure that the front of the UPS remains clear for user operation.
- **Only** authorized agents or technicians may service the unit.
- **Do not** open the UPS cabinet. Components may contain hazardous or fatal voltage.
- Output receptacles may carry live voltage without connecting to the main power.
- Pay special attention to UPS air inlet; **do not** let it coved by dust.

6.4 Battery

6.4.1 Maintenance

The reliability of the battery is heavily related to the environmental issue.

At the temperature of 25 degrees Celsius, A regular 6-12 months' checkup is advised.

6.4.2 Replacement

Please contact for technical assistance.

APP-A. Troubleshooting

Troubleshooting procedures give simple instructions in determining UPS malfunctions. Start the troubleshooting procedure if you witness any alarm indication.

Alarm

The UPS has an audible alarm. When different situations occurred, UPS will alert users with display and buzzer.

Please refer to the troubleshooting chart below for detail information

Silencing Alarm

Here is the instruction to mute the active alarm or future alarm notification:

Note: During battery-mode, if the battery is low on power, the alarm will sound regardless of silent-mode enable/disable.

Silencing during Battery-Mode: Press any button when the alarm occurred.

Silent Mode: configure on LCD to enable/disable all audio malfunction warning.

If troubleshooting does not include or resolve your situation, feel free to contact for technical assistance.

Situation Display	Alarm	Description & Solution
High Output Voltage	Constant beep	High output voltage Please contact for technical assistance
Low output Voltage	Constant beep	Low output voltage Please Contact for technical assistance
Output short	Constant beep	Output short circuit Please Contact for technical assistance
Bus fault	2 beep/seconds	High internal DC bus Voltage Please contact for technical assistance
Over-temperature	2 beep/seconds	High surrounding temperature Ensure fan operational and ventilation clear Contact for technical assistance If the problem remains
Set wiring fault	1 beep/seconds	Wrong UPS input wiring between natural and line, turn the plug 180 degrees and plug it in
Output overload	2 beep/seconds	The connected load power requirement exceeds UPS provision. UPS will switch to bypass mode when overload in Line-mode. Shut off less essential equipment connected to UPS. UPS automatically switches back to normal when the problem resolves
Over-charge	Constant beep	Battery overcharged, Turn off UPS and contact for technical assistance
Charger failure	N/A	The charger has failed. Contact for technical assistance
Battery failure	3 beep/5 econds	The battery has failed. Contact for technical assistance
Line abnormal	1beep/seconds	Wrong AC line backed up during auto restart Please reconfirm your main power and frequency
Battery test	N/A	UPS battery test processing. UPS will return to normal operation after completion No action needed
Battery mode	1 beep/ 5 second with display	The unit is operating with battery power secure your data and perform a controlled shutdown
Low battery	2 beep/5 seconds with display	UPS will shut down due to low battery voltage. The unit will restart automatically when sufficient power returns

APP-B Technical Specifications

For all model

* While 208V output, capacity will be derated to 90%.

** Specifications are subject to change without further notice.

** Specifications are for reference, please refer to information based on real product.

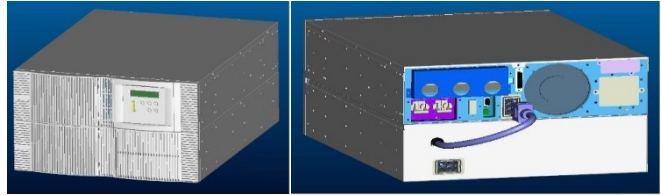
	Model	4000	5000	6000	8000	10 K	12K	15K	20K
Configuration									
Capacity (VA)		4000 VA	5000 VA	6000 VA	8000 VA	10 KVA	12000 VA	15000 VA	20000 VA
Capacity (Watts)		2800 W	3500 W	4200 W	5600 W	7000 W	8400 W	10500 W	14000 W
Form		Tower Type							
Phase		Single Phase							
Energy Saving		Yes - ECO Mode Efficiency >94%							
Input									
Voltage		208 / 220 / 230 / 240 VAC							
Input Voltage Range		120 - 276 VAC < 40% Load 140 - 276 VAC < 70% Load 160 - 276 VAC < 100% Load		120 - 276 VAC < 25% Load 140 - 276 VAC < 50 % Load 160 - 276 VAC < 75% Load 180 - 276 VAC < 100% Load					
Input Frequency Range		50 / 60 Hz (Auto Sensing)							
Input Power Factor		>0.97							
Cold Start		Yes							
Output									
Rated Power Factor		0.7							
Waveform		Pure Sine Wave							
Voltage		208* / 220 / 230 / 240 VAC ± 2%							
Frequency		50 / 60 Hz ±0.25Hz							
Transfer Time		0 ms							
Harmonic Distortion		≤ 3% THD at Linear Load						≤ 5% THD at Linear Load	
Crest Factor		3 : 1							
EPO Function		Yes							
Protection									
Overload	Line Mode	110% - 125% for 60 seconds : 125% - 150% for 10 seconds							
	Battery Mode	> 110% for 10 seconds							
Surge Protection		IEC 61000-4-5 Level 3							
Bypass		Internal Bypass (Automatic and Manual)							
Short Circuit Protection		UPS Output Cut Off Immediately							
Battery									
Type		12V 7Ah	12V 9Ah	12V 7Ah	12V 7Ah	12V 9Ah	12V 7Ah	12V 7Ah	12V 9Ah
Quantity		10	10	20	20	20	20 x 2 set	20 x 2 set	20 x 2 set
Sealed, Maintenance Free		Yes							
Typical Recharge Time		4 hr to 90%							
External Battery Module		Option							
External Battery Connector		Option							
Management & Communication									
Indicator		LCD Control Panel							
Communication Port		RS 232, USB B type, SNMP card (Option)							
Audible Alarms		Yes							
SNMP Slot		Option							
Physical									
Dimensions (WxDxH) (mm)		258x537x440		257x590x570	257x690x715		342x690x905	342x760x905	
Weight (kgs)		50		86	112		190	207	
Shipping Dimensions (mm)		406x682x525		415x760x800	415x860x930		512x873x1135	500x930x1135	
Shipping Weight (kgs)		53		106	139		210.7	225	
Dimensions W/ISO TX		--		257x590x700	342x690x715		342x690x905	342x760x905	
Weight W/ISO TX		--	--	123	178		243	273.5	
Shipping Dimensions W/ISO TX		--	--	415x760x930	500x860x930		512x873x1135	500x930x1135	
Shipping Weight W/ISO TX		--	--	145	210		263.7	295.7	

Model		4000 RM	5000 RM	6K RM	8K RM	10K RM	12K RM
Configuration							
Capacity (VA)		4000 VA	5000 VA	6000 VA	8000 VA	10 KVA	12 KVA
Capacity (Watts)		2800 W	3500 W	4200 W	5600 W	7000 W	8400 W
Form		Rack Type					
Phase		Single Phase					
Energy Saving		Yes - ECO Mode Efficiency >94%					
Input							
Voltage		208 / 220 / 230 / 240 VAC					
Input Voltage Range		120 - 276 VAC < 40% Load 140 - 276 VAC < 70% Load 160 - 276 VAC < 100% Load	120 - 276 VAC < 25% Load 140 - 276 VAC < 50 % Load 160 - 276 VAC < 75% Load 180 - 276 VAC < 100% Load				
Input Frequency Range		50 / 60 Hz (Auto Sensing)					
Input Power Factor		>0.97					
Cold Start		Yes					
Output							
Rated Power Factor		0.7					
Waveform		Pure Sine Wave					
Voltage		208* / 220 / 230 / 240 VAC ± 2%					
Frequency		50 / 60 Hz ±0.25 Hz					
Transfer Time		0 ms					
Harmonic Distortion		≤ 3% THD at Linear Load					
Crest Factor		3 : 1					
EPO Function		Yes					
Protection							
Overload	Line Mode	110% - 125% for 60 seconds : 125% - 150% for 10 seconds					
	Battery Mode	> 110% for 10 seconds					
Surge Protection		IEC 61000-4-5 Level 3					
Bypass		Internal Bypass (Automatic and Manual)					
Short Circuit Protection		UPS Output Cut Off Immediately					
Battery							
Type		12V 5Ah	12V 5Ah	12V 7Ah	12V 7Ah	12V 9Ah	12V 9Ah
Quantity		10	10	20	20	20	20
Sealed, Maintenance Free		Yes					
Typical Recharge Time		4 hr to 90%					
External Battery Module		Option					
External Battery Connector		Option					
Management & Communication							
Indicator		LCD Control Panel					
Communication Port		RS 232, USB B type, SNMP card (Option)					
SNMP Slot		Option					
Audible Alarms		Yes					
Physical							
Power Module	Dimensions (WxDxH) (mm)	428 x 657 x 130 (3U)		428x597x130(3U)		428 x 657 x 130 (3U)	
	Weight (kgs)	40		20		24.3	
	Shipping Dimensions (mm)	590 x 830 x 370 (3U)		560x740x273(3U)		565 x 805 x 280	
	Shipping Weight (kgs)	54		24		30.5	
Battery Module	Dimensions (WxDxH) (mm)	--		428x597x130(3U)		428 x 657 x 130 (3U)	
	Weight (kgs)	--		66		68	

Model	8000 31	10K 31	12K 31	15K 31	20K 31
Configuration					
Capacity (VA)	8000 VA	10 KVA	12 KVA	15 KVA	20 KVA
Capacity (Watts)	5600 W	7000 W	8400 W	10500 W	14 KW
Form	Tower Type				
Phase	Input: Three Phase , Output: Single Phase				
Energy Saving	Yes - ECO Mode Efficiency >94%				
Input					
Voltage	208/360VAC, 220/380VAC, 230/400VAC, 240/415 VAC (3Ø 5W)				
Input Voltage Range	208 - 478 VAC < 25% Load 243 - 478 VAC < 50 % Load 277 - 478 VAC < 75% Load 312 - 478 VAC < 100% Load				
Input Frequency Range	50 / 60 Hz (Auto Sensing)				
Input Power Factor	> 0.9				
Cold Start	Yes				
Output					
Rated Power Factor	0.7				
Waveform	Pure Sine Wave				
Voltage	208* / 220 / 230 / 240 VAC ± 2%				
Frequency	50 / 60 Hz ±0.5 %				
Transfer Time	0 ms				
Harmonic Distortion	≤ 3% THD at Linear Load			≤ 5% THD at Linear Load	
Crest Factor	3 : 1				
EPO Function	Yes				
Protection					
Overload	Line Mode	110% - 125% for 60 seconds / 125% - 150% for 10 seconds			
	Battery Mode	> 110% for 10 seconds			
Surge Protection	IEC 61000-4-5 Level 3				
Bypass	Internal Bypass (Automatic and Manual)				
Short Circuit Protection	UPS Output Cut Off Immediately				
Battery					
Type	12V 7Ah	12V 9Ah	12V 7Ah	12V 9Ah	
Quantity	20	20	20 x 2 set	20 x 2 set	
Sealed, Maintenance Free	Yes				
Typical Recharge Time	4 hr to 90%				
External Battery Module	Option				
External Battery Connector	Option				
Management & Communication					
Indicator	LCD Control Panel				
Communication Port	RS 232, USB B type				
Audible Alarms	Yes				
SNMP Slot	Option				
Physical					
Dimensions (WxDxH) (mm)	257 x 690 x 715		342 x 690 x 905	342 x 760 x 905	
Weight (kgs)	112		190	207	
Shipping Dimensions (mm)	415 x 860 x 930		512 x 873 x 1135	500 x 930 x 1135	
Shipping Weight (kgs)	139		210.7	225	
Dimensions W/ISO TX	342 x 690 x 715		342 x 690 x 905	342 x 760 x 905	
Weight W/ISO TX	178		243	273.5	
Shipping Dimensions W/ISO TX	500 x 860 x 930		512 x 873 x 1135	500 x 930 x 1135	
Shipping Weight W/ISO TX	210		263.7	295.7	

6K RACK-MOUNT(3U+3U) DESIGN:

(1) Basic component: 3U-UPS & 3U-Battery cabinet.



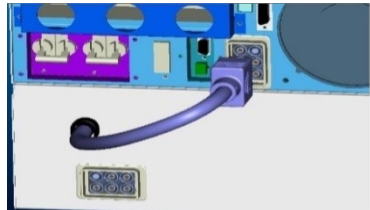
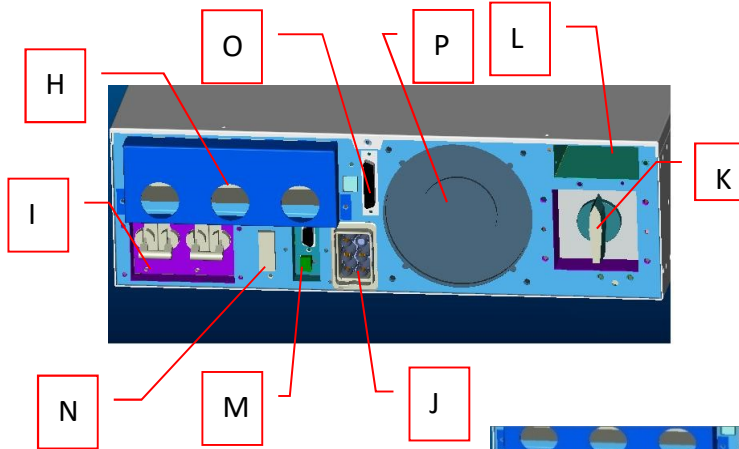
Front & Rear view

(2) UPS REAR PANEL COMPONENTS:

H. TERMINAL BLOCK
K. BYPASS SWITCH
N. TVSS

I. BREAKER
L. SNMP SLOT
O. USB

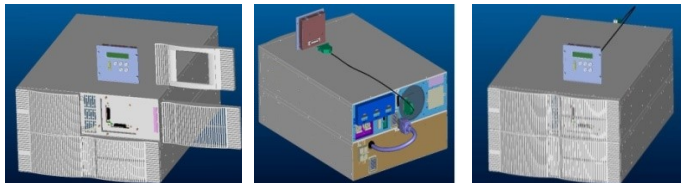
J. EXTERNAL BATTERY CONNECTOR
M. RS232 + EPO
P. REMOTE CONTROL PORT



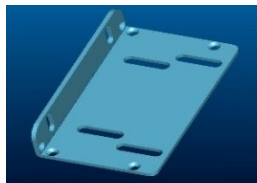
(3) Connect the Battery cabinet to UPS:

(4) FEATURE of REMOTE CONTROL FUNCTION:

- Remove the original right-side panel and take apart the control panel unit. Then assemble the blank right side panel.
- Connect the Control panel unit and Remote control port from the rear side.
- Running the remote control function.

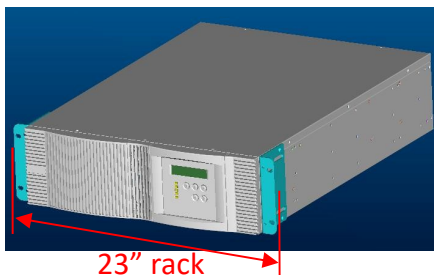
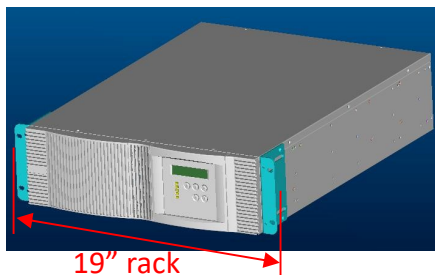


5 in 1 FUNCTION BRACKETS on RACK-MOUNT 3U DESIGN:



(1) 19" Rack installation:

Mount the 3U rack-mount in a 19-inch EIA 310 C standard rack.

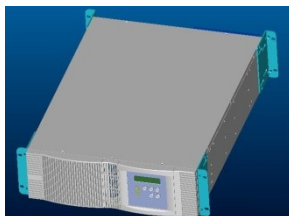
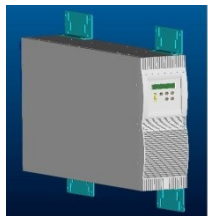
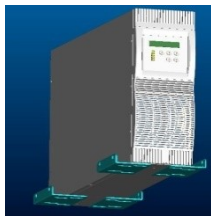
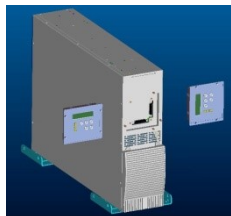


(2) 23" Rack installation:

Change the position of the two mounting brackets to mount the 3U rack-mount in a 23-inch EIA 310 C standard rack.

(3) Tower installation:

- Move the mounting brackets from the front to the side and attach the brackets by screws. Then let the UPS stand with the vertical direction as the picture shows below.
- Rotate the control panel unit from horizontal to the vertical direction.



(4) all installation:

Move the mounting Brackets from the front to the side and attach the brackets by screws. Then mount the UPS to the wall like the picture shown below.

(5) Installation with rear Bracket:

We can use brackets to support the rear side of the UPS or battery cabinet.

